

Claims:

- Sub
a22
- 1 A circuit for modulating voltage signals comprising:
- 3 a first circuit configuration to substantially simultaneously and asynchronously drive
4 respective positive and negative voltage signals onto respective voltage signal storage
5 elements;
6 and a second circuit configuration to alternatively sample the respective voltage
7 signals of the respective voltage signal storage elements at a substantially predetermined
8 rate.
- 1 2 The circuit of claim 1, and further comprising a liquid crystal cell coupled to said second
2 circuit configuration.
- 1 3 The circuit of claim 2, wherein the substantially predetermined rate is related, at least in
2 part, to the particular liquid crystal material of the liquid crystal cell.
- 4 4 The circuit of claim 2, wherein said first circuit configuration includes circuitry to address
said liquid crystal cell.
- 5 5 The circuit of claim 4, wherein said circuit for modulating voltage signals is coupled in a
liquid crystal display (LCD) system;
said LCD system being adapted to substantially simultaneously and asynchronously
4 drive additional voltage signals onto respective voltage signal storage elements so that the
stored voltage signals of the respective voltage signal storage elements are refreshed.
- 6 6 The circuit of claim 2, wherein said second circuit comprises a plurality of transistors
coupled to electrically isolate said voltage signal storage elements from said liquid crystal cell
3 while alternatively sampling the respective voltage signals of the respective voltage signal storage
4 elements.
- 1 7 The circuit of claim 1, wherein the voltage signal storage elements comprise capacitors.
- 1 8 The circuit of claim 1, wherein said circuit for modulating voltage signals is embodied on an
2 integrated circuit chip.
- 1 9 A liquid crystal display (LCD) system comprising:
2 a voltage signal modulation circuit to locally modulate the voltage signal applied
3 across a liquid crystal cell in said LCD system;
4 said voltage signal modulation circuit including a first circuit configuration to
5 substantially simultaneously and asynchronously drive respective positive and negative
6 voltage signals onto respective voltage signal storage elements and a second circuit
7 configuration to alternatively sample the respective voltage signals of the respective
8 voltage signal storage elements at a substantially predetermined rate.

1 10 The LCD system of claim 9, and further comprising at least one liquid crystal cell coupled
2 to said voltage signal modulation circuit.

1 11 The LCD system of claim 10, wherein the substantially predetermined rate is related, at
2 least in part, to the particular liquid crystal material of the liquid crystal cell.

1 12 The LCD system of claim 10, wherein said system includes circuitry to address said at
2 least one liquid crystal cell.

1 13 The LCD system of claim 10, wherein said LCD system is adapted to substantially
2 simultaneously and asynchronously drive additional voltage signals onto the respective voltage
3 signal storage elements so as to refresh the stored voltage signals.

1 14 A method of modulating a voltage signal locally comprising:
2 applying respective positive and negative voltage signals to respective voltage signal
3 storage elements substantially simultaneously and asynchronously; and
4 sampling the voltage signals of the respective voltage storage elements alternatively
5 at a substantially predetermined rate.

1 15 The method of claim 14, and further comprising a liquid crystal cell coupled to the voltage
2 signal storage elements.

1 16 The method of claim 15, wherein the substantially predetermined rate is related, at least in
2 part, to the particular liquid crystal cell material of the liquid crystal cell.

1 17 The method of claim 14, wherein the voltage signal storage elements comprise capacitors.

1 18 A voltage signal modulation circuit comprising:
2 a first circuit to substantially simultaneously and asynchronously drive respective
3 voltage signals onto respective voltage signal storage elements; and
4 a second circuit to sample the voltage signals of the respective voltage signal
5 storage elements so as to locally produce a modulated voltage signal.

1 19 The voltage signal modulation circuit of claim 18, wherein the voltage signals comprise
2 respective positive and negative voltage signals and the respective voltage signal storage elements
3 comprise two respective voltage signal storage elements;

4 said first circuit being adapted to substantially simultaneously and asynchronously
5 drive the respective positive and negative voltage signals onto the two respective voltage
6 signal storage elements.

1 20 The voltage signal modulation circuit of claim 18, wherein said second circuit is adapted to
2 sample the voltage signals of the respective voltage signal storage elements at a substantially
3 predetermined rate.

1 21 The circuit of claim 18, wherein said second circuit is further adapted to sample the voltage
2 signals of the respective voltage signal storage elements so as to substantially maintain a
3 substantially DC bias.

1 22 A method of modulating a voltage signal locally comprising:

2 applying respective voltage signals to respective voltage signal storage elements
3 substantially simultaneously and asynchronously; and

4 sampling the voltage signals of the respective voltage signal storage elements at a
5 substantially predetermined rate so as to locally produce the modulated voltage signal.

1 23 The method of claim 22, wherein the voltage signals of the respective voltage signal
2 storage elements are sampled so as to substantially maintain a substantially DC bias.

1 24 A display system comprising:

2 a voltage signal modulation circuit to locally modulate the voltage signal applied
across a light modulating element in said display system;

3 said voltage signal modulation circuit including a first circuit configuration to
4 substantially simultaneously and asynchronously drive respective voltage signals onto
5 respective voltage signal storage elements and a second circuit configuration to sample the
6 voltage signals of the respective voltage signal storage elements at a substantially
7 predetermined rate so as to locally produce a modulated voltage signal.

8 25 The system of claim 25, wherein said system is adapted to drive substantially
9 simultaneously and asynchronously additional voltage signals onto the respective voltage signal
10 storage elements so as to refresh the stored voltage signals.